ISSUES&ANSWERS REL 2012–No. 123

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April 2012

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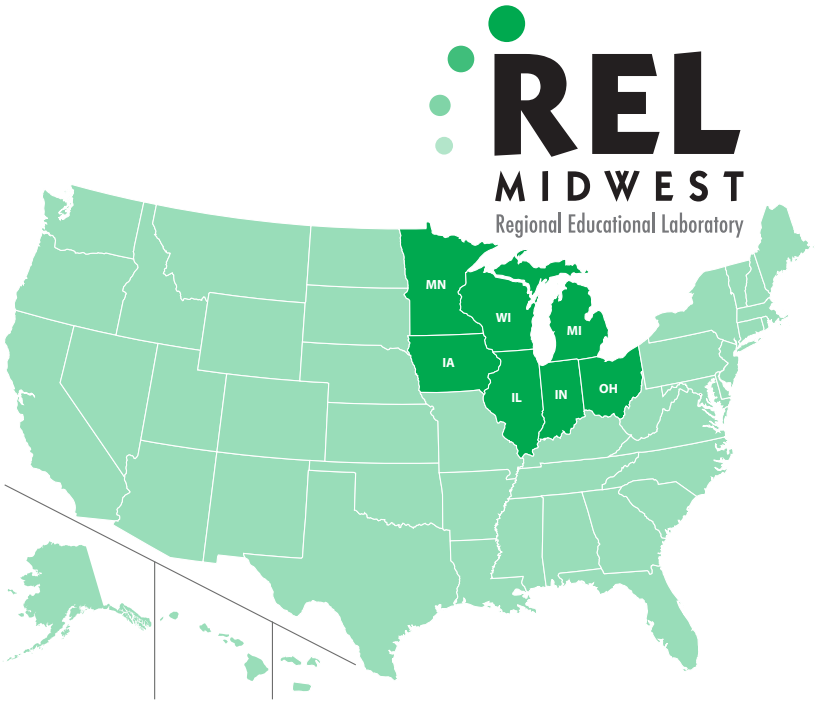

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April 2012

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Summary

REL 2012–No. 123

Changes in student populations and teacher workforce in low-performing Chicago schools targeted for reform

This report examines changes in student populations and teacher workforce in 31 Chicago public schools selected for district-led turnaround reforms that were intended to dramatically improve performance in chronically low-performing schools. Changes in student population and teacher workforce are measured using data for the year before the intervention and the year after.

"Turning around" chronically low-performing schools is of increasing interest to educators and policymakers, as highlighted by the U.S. Department of Education's (2010) recent call to rapidly improve the nation's 5,000 lowest performing schools. Yet there is little rigorous research on changes in student populations and teacher workforce in schools undergoing interventions to improve low-performing schools. To fill this gap, this study examines turnaround intervention models intended to rapidly improve student performance in chronically low-performing schools in the Chicago Public Schools district. It analyzes the changes in student populations and teacher workforce in 31 public schools in Chicago selected for district-led reform interventions for chronically low-performing schools over 1997–2010.

This study focused on five district-level models designed to dramatically improve school performance in a short time:

- Reconstitution (seven high schools).
- School closure and restart (six elementary schools and two high schools).
- School Turnaround Specialist Program (STSP; four elementary schools).
- Academy for Urban School Leadership (AUSL; seven elementary schools and one high school).
- Office of School Improvement[1] (OSI; two elementary schools and two high schools).

All five models relied on changing the school leadership; this was the only lever of change under the STSP model. The other four models relied on changing both the staffing and the leadership. School closure and restart was the most drastic model. In this model, students were moved to other schools, new governance was in place when schools reopened, and student enrollment changed from assignment by neighborhood residence to an application and lottery system. In most cases, these schools reopened a few grades at a time and added a grade each year until the full grade structure was in place.

Two research questions guided the study:

- Did the characteristics of students change in the intervention schools?
- Did the characteristics of teachers change in the intervention schools?

For the first research question, descriptive analyses compared students in the school the

fall before the intervention with students in the same grades in the fall after the intervention began. For the second, descriptive analyses compared the teacher workforce in these schools for the same periods. These descriptive analyses show school-by-school changes in students and teachers organized around the intervention models. The analyses are based on the entire population of students and teachers at each school and are not statistical estimates.

Comparing student enrollment the fall before the intervention and the fall after the intervention shows that:

- Twenty-three of 31 schools served fewer students by grade after the intervention, with five schools serving at least a quarter fewer students. Four of the schools with the largest declines in enrollment were part of the closure and restart model.

- Except for schools in the closure and restart model, schools reenrolled 55–89 percent of students eligible to reenroll. The rates were similar to reenrollment rates in the years before intervention.

- Schools in the closure and restart model reenrolled 0–47 percent of students eligible to reenroll. Schools in this model were closed for one or two years before opening again, did not serve all the same grade levels when they reopened, and held citywide enrollment lotteries, which made it difficult for students to reenroll.

- The composition of the student body—in race/ethnicity, socioeconomic status, and special education status—in intervention schools was largely similar before and after the interventions in all models except for the closure and restart model. In that model, schools after intervention served a larger percentage of economically advantaged students and of students with higher prior achievement levels, and smaller percentages of special education students and of students residing in the neighborhood near the school.

Comparing the teacher workforce the year before the intervention and the year after the intervention shows that:

- The extent of teacher rehiring varied with the intervention model. Schools in the reconstitution model rehired 42–66 percent of teachers, and schools in the STSP model retained 44–80 percent. Schools in the closure and restart, AUSL, and OSI models rehired just 0–24 percent of teachers.

- In all intervention models, the teacher workforce was more likely to be White, younger, and less experienced and more likely to have provisional certification after intervention than before it.

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Note

1. Formerly Office of School Turnaround.

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Tables

This report examines changes in student populations and the teacher workforce in 31 Chicago public schools selected for district-led turnaround reforms that were intended to dramatically improve performance in chronically low-performing schools. Changes in the student population and the teacher workforce are measured using data for the year before the intervention and the year after.

WHY THIS STUDY?

"Turning around" chronically low-performing schools is a topic of increasing interest in the national education discourse. The U.S. Department of Education (2009), independent researchers (Meyers and Murphy 2008), and practitioners (Wolk 1998) are calling for drastic improvement in the academic performance of these schools.

National leaders recently increased their attention to school turnaround by defining and promoting four models (turnaround, restart, closure, and transformation) that involve "dramatic change, including significant changes in leadership, staffing, and governance" (State Fiscal Stabilization Fund Program 2009, p. 58462). Currently, several competitive federal grants, including Race to the Top Fund grants and School Improvement Grants, require recipients to implement one of these models. The U.S. Department of Education (2010) recently expanded funding for School Improvement Grants to rapidly improve the country's 5,000 lowest performing schools.

Despite the recent focus on turning schools around, there is little rigorous research on the implications of turnaround initiatives for students and teachers. Most studies of low-performing schools list the steps taken by schools that have successfully implemented these initiatives (Picucci et al. 2002; Rhim et al. 2007; Murphy and Meyers 2008; Kowal and Hassel 2005; Herman et al. 2008; Calkins, et al. 2007; Charles A. Dana Center 2001), linking their success to the elements highlighted in the research. The authors acknowledge, however, that the suggestions for reform in the literature are based on "low" levels of evidence.

Although such studies are useful in describing what might be good practice for turning schools around, a better understanding is needed of the implications of turnaround reforms for students and teachers. To that end, Regional Educational Laboratory (REL) Midwest and the University of Chicago Consortium on Chicago School Research have partnered to examine Chicago Public Schools turnaround intervention models over 1997–2010.

Chicago Public Schools reform efforts

Since 1997, the Chicago Public Schools district has introduced several intervention models (see box 1 and appendix A), some of them coinciding with impending sanctions from the No Child Left Behind Act of 2001. This report focuses on changes in student populations and the teacher workforce in schools placed in five formal district-level models implemented over 1997–2010 that were designed to dramatically and rapidly improve performance in chronically low-performing schools (table 1).[1] These models involved substantial school-level changes in leadership, staff, and governance.

This study used teacher personnel files and student administrative records to describe schools selected to implement turnaround models over 1997–2010 (see appendix B for intervention school profiles and appendix C for details on data sources).

Research questions

This study addresses two research questions for the 31 Chicago schools selected for reform:

- Did the characteristics of students change in the intervention schools?
- Did the characteristics of teachers change in the intervention schools?

The report first reviews student demographic data in the schools that underwent reform, looking at changes in schools before and after the reforms to show whether characteristics of students changed in individual schools (see box 2 and appendixes C and D). The report then reviews teacher demographic data in the schools that underwent reform (before and after the reforms) to show whether characteristics of staff changed in individual schools. The intervention models called for major changes in personnel, but whether the faculty characteristics changed as a result of these interventions is unknown. Although none of the interventions called for student relocation, the composition of student bodies might have changed in intervention schools, especially in schools that closed and reopened a year later. Students would have been displaced during that time without any guarantee that they could return to the school when it reopened. In addition, nearly 20 percent of students in reconstituted Chicago schools transferred as a result of the school's reputation (Hess 2003).

STUDY FINDINGS

Five turnaround models were implemented in Chicago Public Schools over 1997–2010, encompassing 31 schools identified as chronically low-performing. These schools experienced the turnaround characteristics defined by the U.S. Department of

TABLE 1
Characteristics of five turnaround intervention models in Chicago Public Schools, 1997–2010

Intervention model	Sample[a]		Staff replacement	Leadership replacement	Governance replacement	Change in attendance rules
	Elementary schools	High schools				
Reconstitution	0	7	Yes	Yes	No	No
School closure and restart	6	2	Yes	Yes	Yes	Yes
School Turnaround Specialist Program	4	0	No	Yes	No	No
Academy for Urban School Leadership	7	1	Yes	Yes	Yes	No
Office of School Improvement	2	2	Yes	Yes	No	No

a. Elementary schools serve any grades K–8 and do not serve students in high school grades; high schools serve at least some of the grades 9–12.

Source: Authors' analysis based on data described in appendix B.

BOX 1

Chicago's school reform efforts

The Chicago School Reform Amendatory Act of 1995 (P.A. 89-15) increased mayoral control of schools and provided the Chicago Public Schools district with "enhanced powers over financial, managerial, and educational matters" (Wong 2000, p. 100). Five intervention models were introduced over 1997–2010 in 31 Chicago public schools serving K–12 students. These schools were identified as chronically low-performing and as meeting the requirements of school interventions reserved for the lowest performing schools in the country, as defined by the U.S. Department of Education.[1] Some schools experienced more than one intervention model at different times. See appendix B for detailed descriptions of the schools.

Reconstitution. Reconstitution, implemented over the summer of 1997 in seven low-performing high schools, required all faculty and staff to reapply for their positions. Three principals were rehired, and four were replaced (Hess 2003). Strategies included revising academic standards and introducing career academies (Finnigan and O'Day 2003). The goal was to improve student performance on state tests, though it is unclear whether any targets or timelines were set (Chicago Public Schools 1999). Reconstitution was not used after 1997.

School closure and restart. From 2002 to 2009, six elementary schools and two high schools were closed for low academic performance and reopened later. Tenured teachers were reassigned, untenured teachers and other staff members were laid off, and the schools remained closed for at least a year before reopening as new traditional, charter, contract, or performance schools, often as multiple-campus buildings and with new staff and new names.[2] The new schools were open to students across the city through a lottery. Many reopened schools served different grade levels than did the schools they replaced. Two schools were designated professional development schools for the teacher training program run by the Academy of Urban School Leadership (see below). A majority of new schools were opened under Chicago's Renaissance 2010 initiative, giving them "more freedom than traditional public schools in return for high levels of accountability" (Chicago Public Schools 2010a).[3] Renaissance 2010 schools also received financial support. Schools had to meet targets for composite and growth scores on state tests, attendance, and graduation rates to renew their charters (after five years).

School Turnaround Specialist Program. In 2006, four low-performing elementary/middle schools were placed in the School Turnaround Specialist Program (STSP), administered by the University of Virginia's Partnership for Leaders in Education. Three schools received new principals. All four principals participated in a training program that focused on best practices in education and business (Partnership for Leaders in Education 2010). Principals had three goals: meet adequate yearly progress requirements, reduce reading and math failure rates by at least 10 percent each, and receive a "meets" or "exceeds" rating on the annual evaluation (Flavia Hernandez, personal communication, March 19, 2010; Adrian Willis, personal communication, March 23, 2010). Each school set goals in areas such as academic achievement, attendance, and parent involvement. Principals received various supports and financial incentives, consulting visits from an experienced administrator, a signing bonus, and graduated bonuses for meeting two to four of the targets (Public Impact 2008).

Academy for Urban School Leadership. From 2006 to 2009, seven low-performing elementary schools and one high school were placed under the Academy for Urban School Leadership (AUSL), a local school management organization charged with training teachers to transform their schools. Schools replaced their entire staff. Most new staff were trained in an AUSL residency program that combines year-long mentored teaching and evening graduate-level courses (Academy for Urban School Leadership 2010). The schools also hired new principals. Tailored goals were created for each school, with a focus on attendance and student achievement (Bridget Altenburg, personal communication, March 27, 2010; Christina Fradelos, personal communication, March 27, 2010). Additional funding from public and private sources enabled the district and schools to hire more staff, organize youth guidance and other programs, and renovate school buildings (Academy for Urban School Leadership 2010).

Office of School Improvement. In 2008 and 2009, the district identified two

BOX 1 (CONTINUED)

Chicago's school reform efforts

low-performing elementary schools and two high schools to be turned around with the Office of School Improvement (OSI) model. Teachers were terminated at the conclusion of the school year, and new faculties were hired over the summer. Principals were replaced in three schools. The model focuses initially on stabilizing the school and developing a positive culture. At the end of the first year, the focus turns to teaching and learning. The two elementary schools received additional financial support (Chicago Public Schools 2009a). The goal is to achieve significant gains on state assessments in the second year (Chicago Public Schools 2009b); boost attendance rates, graduation rates, and parent satisfaction; and reduce student misconduct.

The chronically low-performing schools selected to undergo one of these reforms were not the only low-performing schools in the district that were on probation at the time those schools were selected. It has not always been apparent why these schools (and not others) were selected. More recently, Chicago Public Schools (2010b) reported that the district may consider closing schools or enacting "other turnaround measures" if a school fails to earn at least 33.3 percent of performance points under the district Performance Policy for two consecutive years.[4]

Notes

1. The U.S. Department of Education has proposed four intervention models: turnaround (replacing the principal and at least half the staff), restart (schools close and reopen under a charter management organization or an educational management organization), school closure (enrolling students in other, high-achieving schools in the district), and transformational (replacing the principal).
2. Charter schools are independently operated public schools that are not subject to the same state laws, district initiatives, and board policies as are traditional public schools. Charters are operated pursuant to Illinois Charter Law. Charter school teachers are employees of the nonprofit governing board or education management organization hired by the nonprofit board. Contract schools are independently operated public schools under Renaissance 2010. Contract schools operate pursuant to the Illinois School Code, are managed by an independent nonprofit organization, and employ teachers who work for the nonprofit board. Contract schools have an advisory body composed of parents, community members, and staff. Performance schools are operated by Chicago Public Schools and employ its teachers and staff. These schools are subject to the collective bargaining agreement between Chicago Public Schools and the Chicago Teachers Union and other labor organizations. Chicago Public Schools has flexibility, however, in many areas, such as curriculum, school schedule, and budget. In lieu of local school councils, performance schools have an alternative local school council, which allows parents, community members, and staff to be involved in all aspects of the school's activities.
3. The Renaissance 2010 initiative was launched in 2004 "to create more high quality educational options across Chicago." Any new school opened in Chicago since 2005 has been labeled a "Ren10" school. (Chicago Public Schools 2010a).
4. See www.cps.edu/Performance/Pages/PerformancePolicy.aspx for a detailed account of the Performance Policy.

Education: replacement of leadership, staff, and school governance or attendance rules.

All models but the closure and restart model showed similar patterns in the students they served after intervention: most students who had been enrolled before intervention returned to their schools after, and students shared characteristics of race/ethnicity, socioeconomic status, and participation in special education services. In schools in the closure and restart model, reenrollments of students originally attending the schools were below 50 percent, reflecting the fact that the schools were closed for an entire school year or more and switched from a neighborhood-based to a lottery-based admissions process when they reopened. After reopening, the closure and restart schools tended to serve more economically advantaged students, more students of higher prior achievement, and fewer special education students.

In all the models, schools were smaller after the intervention; 23 of the 31 schools served fewer students per grade during the first year after intervention, with 5 schools serving at least 25 percent fewer. Four of those five schools were in the closure and restart model.

BOX 2

Study methods

To identify changes in student composition in schools targeted for reform, the characteristics of students attending schools in September of the year before the intervention were compared with those of students attending schools in September of the first year of the intervention. Data on student race/ethnicity, age, gender, academic achievement, and special education status were obtained from student administrative records (see appendix C). Students' home addresses were used to determine whether schools continued to serve students from the same neighborhoods. Addresses were also linked to Census information to create indicators of poverty and social status in students' Census block group—to determine whether the types of students being served by the school changed after intervention.

Because most closure and restart schools reopened with different grade structures, the analyses included only similar grades. For example, if School A, a grade 9–12 high school before it closed, reopened as a grade 9 school only, with plans to add another grade each year, the analysis compared the new grade 9 students with the last group of grade 9 students that went through that school before intervention.

Changes in staffing were examined by comparing the teacher workforce before and after intervention using personnel records containing information on degrees achieved, years of experience in Chicago Public Schools, demographic characteristics (age, race/ethnicity, gender), and certification information. Charter schools and contract schools were not included in the analysis because personnel records do not include information on teachers in those schools. Some schools in the closure and restart model reopened as charter or contract schools and so were excluded from the analysis.

All but one of the turnaround models called for major changes in teaching staff, but the extent of the changes varied widely with the turnaround model. Schools under the reconstitution model implemented interventions over a brief period during the summer of 1997. Approximately half the original teachers were rehired in these schools. Schools under the STSP model retained about 60–80 percent of their original teachers, because replacing staff was not a lever of change in that model.[4] In contrast, schools under the closure and restart model rehired less than a quarter of their original teachers. Schools in the AUSL and OSI models also rehired just a small fraction of their original teaching force (0–25 percent). In general, newly hired teachers across all turnaround models were more likely to be White, younger, and less experienced and to not have permanent certifications than were the teachers at the schools before the intervention.

Did the characteristics of students and teachers change in the intervention schools?

Student characteristics before and after intervention. Of 31 schools undergoing intervention, 23 served fewer students per grade during the first year of intervention than before, with 5 schools serving at least 25 percent fewer students (table 2; see table D1 in appendix D for complete data).[5,6]

Except for schools in the closure and restart model, more than 55 percent of students who had been enrolled in the September before their school was in intervention returned in the September of the first year of intervention (figure 1; see table D1 in appendix D for reenrollment rates in the year before the interventions). For all but one school in the OSI model (whose reenrollment rate was much lower in the first year of intervention than before it), the reenrollment rate was similar to year-to-year reenrollment rates before the intervention (comparing enrollment two years before the intervention with enrollment one year before). Reenrollment rates in the year after intervention were the same as or higher than in the year before the intervention.

In the closure and restart schools, reenrollment was lower, at 0–46.5 percent of pre-closure enrollment. Because these schools closed for at least a year, students had to enroll elsewhere and

TABLE 2

Pre- and post-intervention enrollment in comparable grades in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010

Intervention model and school	Grades compared	Enrollment before intervention	Enrollment after intervention	Percentage change	Percentage reenrolled from those eligible
Reconstitution					
DuSable HS	9–12	1,481	1,183	–20.1	55.8
Robeson HS	9–12	1,371	1,179	–14.0	62.3
Harper HS	9–12	1,631	1,476	–9.5	55.3
Phillips HS	9–12	1,194	982	–17.8	61.6
Englewood HS	9–12	1,366	1,061	–22.3	58.4
King HS	9–12	827	679	–17.9	60.9
Orr HS	9–12	1,306	1,060	–18.8	56.8
Closure and restart					
Dodge ES	K–8	312	359	15.1	46.5
Williams ES	K–8	727	383	–47.3	31.1
Howland ES	4–5	76	119	56.6	15.5
Bunche ES	K–5	274	202	–26.3	11.8
Englewood HSa	9	381	174	–54.3	0.0
Morse ES	K–2	153	116	–24.2	11.4
Frazier ES	K–5	299	272	–9.0	8.9
Collins HS	9	326	214	–34.4	0.0
School Turnaround Specialist Program					
Ames MS	7–8	768	819	6.6	88.6
Earle ES	K–8	548	480	–12.4	64.1
Medill ES	K–7	219	173	–21.0	72.1
Jackson ES	K–8	368	355	–3.5	75.2
Academy for Urban School Leadership					
Sherman ES	K–8	559	587	5.0	72.7
Harvard ES	K–8	494	490	–0.8	68.1
Howe ES	K–8	559	491	–12.2	68.9
Orr HS	9–12	1,379	1,190	–13.7	65.2
Morton ES	K–8	255	238	6.7	57.1
Dulles ES	K–8	395	410	3.8	76.6
Johnson ES	K–8	235	242	3.0	63.1
Bethune ES	K–8	318	341	7.2	70.9
Office of School Improvement					
Copernicus ES	K–8	353	313	–11.3	63.5
Fulton ES	K–8	577	591	2.4	64.6
Fenger HS	9–12	1,212	1,187	–2.1	73.8
Harper HS	9–12	1,274	946	–25.7	55.3

Note: The intervention models and schools in each model are arranged from earliest to latest.

a. Two high schools opened in this building in two subsequent years. Enrollment numbers include only the school that opened first.

Source: Authors' analysis based on data described in appendix C.

so might have been less likely to reenroll in their former schools once they reopened. In addition, the new lottery admission process used in the reopened schools might have prevented some students from reenrolling.

Because schools after intervention did not serve the same population of students as they did before, other factors were examined: average distance students traveled to school, student demographics and achievement, and socioeconomic characteristics of students' home neighborhoods (table 3; see table D1 for complete data):

- *Distance traveled to school.* All closure and restart schools went from being neighborhood schools to selecting students through a citywide lottery, serving students who lived 0.25–1.36 miles farther from schools than did the students in the year before intervention. Student distance from the school increased by more than 0.25 mile at only one AUSL school and no STSP schools.[7]

- *Neighborhood concentration of poverty and social status.* Reconstitution, AUSL, STSP, and OSI schools enrolled students from neighborhoods similar in the concentration of poverty and social status to the neighborhoods of students in the schools before the intervention (figure 2; appendix C explains these variables and how they were calculated). Schools in the closure and restart model tended to serve more economically advantaged students after reopening. In seven of eight schools in that model, the concentration of poverty in the neighborhoods where their students lived fell more than 0.1 standard deviation, and in three of eight, neighborhood social status rose more than 0.1 standard deviation.

- *Gender.* Changes in the proportion of male students ranged from declines of 5.3 percentage points to increases of 4.1 percentage points in reconstitution, STSP, AUSL, and OSI schools. Six of eight closure and restart schools experienced changes (increases or decreases) larger than 5 percentage points.[8]

- *Race/ethnicity.* All but one school served mainly Black students. The racial/ethnic composition of students was similar before and after intervention under all five models, except for one school whose population of Black students fell 12.5 percentage points and whose population of Hispanic students rose 11.6 percentage points.

- *Over-age for grade.* Most schools in all five intervention models saw decreases in their percentage of students who were over-age for their grade during the first year of intervention (figure 3). Schools in the closure and restart model had the greatest decreases—more than 10 percentage points in six of eight schools. Schools in the OSI, STSP, and AUSL models experienced smaller changes, ranging from a decrease of 6.8 percentage points to an increase of 1.7 percentage points.

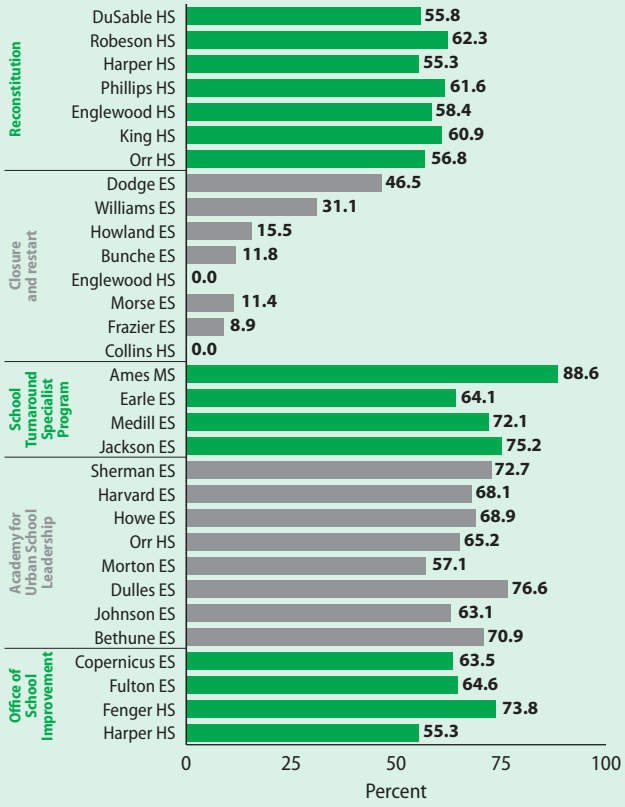
- *Special education.* The percentage of students receiving special education services changed little in the first year after intervention in all models except closure and restart. In that model, the number of special education students fell more than 5 percentage points after intervention in three of eight schools.

- *Incoming reading performance.* Students' incoming reading performance increased 0.2 standard deviation or more in 6 of the 31 schools in the first year of intervention: 3 closure and restart schools, 2 AUSL schools, and 1 OSI school. In two STSP schools, students' incoming reading performance declined 0.2 standard deviation or more.

Teacher characteristics before and after intervention. Four of the five intervention models—reconstitution, OSI, AUSL, and closure and restart—included restaffing as a lever of change. Teachers were let go in schools under those intervention models—and in the reconstitution, OSI,

FIGURE 1

Percentage of eligible students who reenrolled in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010

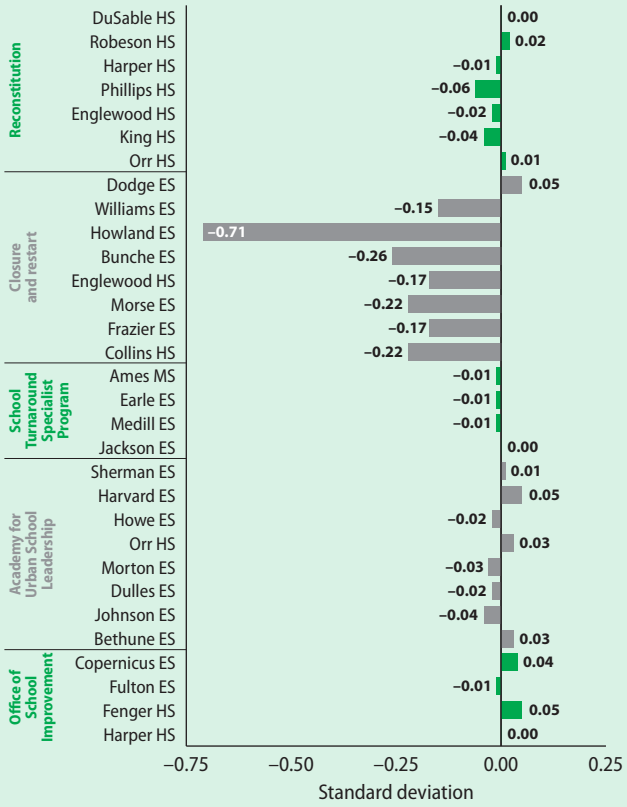


Note: The intervention models and schools in each model are arranged from earliest to latest.

Source: Authors' analysis based on data described in appendix C.

FIGURE 2

Postintervention change in poverty in the neighborhoods where students in intervention schools in Chicago Public Schools reside, by intervention model and schools in intervention over 1997–2010 (standard deviations)



Note: The intervention models and schools in each model are arranged from earliest to latest.

Source: Authors' analysis based on data described in appendix C.

and AUSL models, teachers had the opportunity to reapply for their jobs. Teacher rehiring and retention varied considerably across interventions (table 4; see table D2 in appendix D for complete data). The majority of teachers in OSI and AUSL schools were not rehired, with 9 of the 12 schools rehiring less than 10 percent of teachers (figure 5). All reconstitution schools rehired more than 42 percent of their teachers.[9] Although the STSP model did not use teacher replacement as a lever of change, 20.7–56.2 percent of teachers did not return in the first year after intervention in the four STSP schools. In the closure and restart model, four of the five schools with data did not rehire any teachers, and the fifth school rehired 4.7 percent.

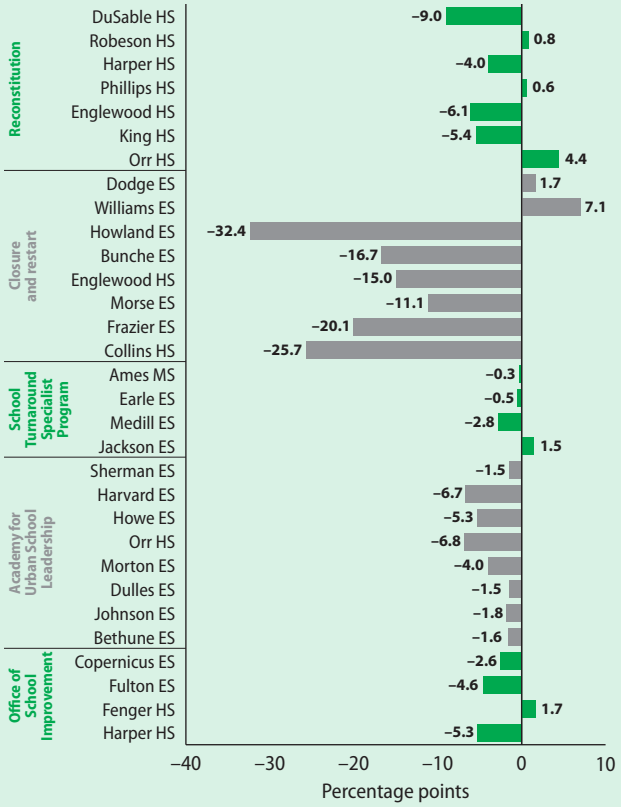
The characteristics and qualifications of teachers newly hired in intervention schools differed from those of teachers in the schools before intervention (see table 4).

Gender. For the 28 schools with data, the percentage of male teachers hired at the intervention schools fell in 15 schools and rose in 13. The proportion of male teachers fell more than 10 percentage points in four schools and rose 10 percentage points or more in four others.

Race/ethnicity. There were more White teachers than Black teachers in 18 of the 28 intervention schools with data on teacher race/ethnicity. In 10

FIGURE 3

Postintervention changes in the percentage of students over-age for grade in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010

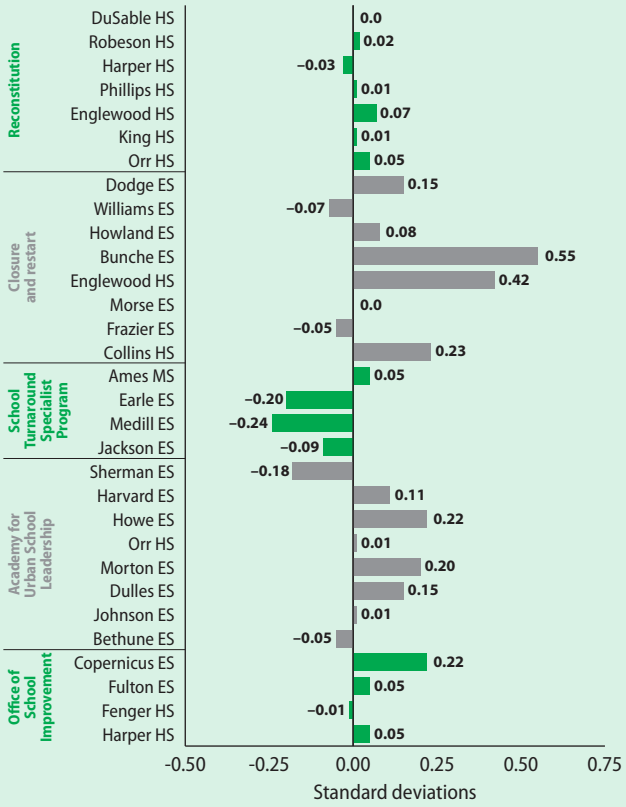


Note: The intervention models and schools in each model are arranged from earliest to latest.

Source: Authors' analysis based on data described in appendix C.

FIGURE 4

Postintervention changes in the incoming reading performance of students in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010 (standard deviations)



Note: The intervention models and schools in each model are arranged from earliest to latest.

Source: Authors' analysis based on data described in appendix C.

schools in the closure and restart, AUSL, and OSI models, the proportion of White teachers rose more than 10 percentage points (figure 6) and the proportion of Black teachers fell 16.5 percentage points or more. As a result, faculties in these three models included nearly equal percentages of Black and White teachers after intervention, though they were mostly Black before the intervention. The number of White teachers fell in four of the seven reconstitution schools and in all STSP schools, accounting for less than 30 percent of the faculties after intervention.

Age. Teachers were younger on average in schools after intervention than in schools before intervention in all but three schools across all five models. In three of the models—closure and restart, AUSL, and OSI—teachers were more than five years younger on average than in the year before the intervention. Schools in the closure and restart model had the greatest change: the average teacher was about 40 years old—10 years younger than the average teacher in the year before the intervention.

- *Years of experience in Chicago Public Schools.* Faculty members in the first year after intervention had fewer years of service in Chicago Public Schools on average than did teachers in the year before intervention (figure 7). In 16 of the 28 schools with data on years of teacher

TABLE 3

Postintervention changes in student composition in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010 (percentage points unless otherwise indicated)

Intervention model and school	Male	Black	Hispanic	Over-age for grade	Special education	Average neighborhood concentration of poverty (standard deviation)	Average neighborhood social capital (standard deviation)	Average distance to school (miles)	Average incoming reading performance (standard deviation)
Reconstitution									
DuSable HS	3.4	0.0	0.1	−9.0	4.2	0.00	0.03	—	0.00
Robeson HS	1.2	−0.4	0.2	0.8	3.6	0.02	0.01	—	0.02
Harper HS	1.1	−0.3	0.2	−4.0	1.2	−0.01	−0.02	—	−0.03
Phillips HS	−4.3	−0.3	0.1	0.6	0.9	−0.06	0.01	—	0.01
Englewood HS	−3.0	0.5	−0.2	−6.1	1.3	−0.02	0.06	—	0.07
King HS	−2.3	0.1	0.0	−5.4	0.8	−0.04	0.06	—	0.01
Orr HS	2.2	−2.0	2.2	4.4	2.3	0.01	−0.02	—	0.05
Closure and restart									
Dodge ES	1.1	−0.2	0.0	1.7	−10.1	0.05	0.01	0.25	0.15
Williams ES	5.8	0.0	0.0	7.1	−1.7	−0.15	0.07	1.04	−0.07
Howland ES	7.6	1.8	−1.8	−32.4	−4.6	−0.71	−0.01	1.26	0.08
Bunche ES	−5.7	0.7	0.0	−16.7	−2.0	−0.26	0.27	1.21	0.55
Englewood HS[a]	40.4	−0.1	0.3	−15.0	−13.5	−0.17	0.09	0.65	0.42
Morse ES	−7.0	−12.5	11.6	−11.1	−3.3	−0.22	0.24	1.36	0.00
Frazier ES	1.3	−1.5	0.4	−20.1	−1.7	−0.17	0.16	1.04	−0.05
Collins HS	−12.4	−3.6	3.6	−25.7	−7.2	−0.22	0.01	0.35	0.23
School Turnaround Specialist Program									
Ames MS	−3.9	0.2	0.1	−0.3	−1.3	−0.01	0.01	0.10	0.05
Earle ES	0.5	0.2	0.0	−0.5	−2.3	−0.01	0.03	0.09	−0.20
Medill ES	−0.1	0.5	−0.5	−2.8	1.8	−0.01	0.03	−0.19	−0.24
Jackson ES	0.6	0.2	−0.2	1.5	−2.3	0.00	0.00	−0.14	−0.09
Academy for Urban School Leadership									
Sherman ES	0.1	−0.8	0.5	−1.5	2.6	0.01	0.03	0.00	−0.18
Harvard ES	0.8	−0.2	0.4	−6.7	−0.6	0.05	0.04	−0.07	0.11
Howe ES	0.1	0.0	0.0	−5.3	−1.1	−0.02	0.00	0.11	0.22
Orr HS	1.1	0.7	−0.4	−6.8	−1.0	0.03	0.01	−0.04	0.01
Morton ES	2.6	−3.1	2.7	−4.0	1.7	−0.03	0.02	0.03	0.20
Dulles ES	1.9	0.0	0.0	−1.5	−1.5	−0.02	0.02	0.00	0.15
Johnson ES	−2.7	0.9	−0.9	−1.8	−2.5	−0.04	−0.03	0.26	0.01
Bethune ES	1.5	0.6	−0.6	−1.6	1.8	0.03	0.02	−0.02	−0.05
Office of School Improvement									
Copernicus ES	4.1	0.5	−0.3	−2.6	−1.1	0.04	−0.03	0.11	0.22
Fulton ES	1.3	−0.8	0.6	−4.6	1.0	−0.01	0.02	0.05	0.05
Fenger HS	−1.5	0.0	0.1	1.7	−2.3	0.05	0.00	−0.08	−0.01
Harper HS	−5.3	0.2	−0.1	−5.3	−1.2	0.00	0.02	0.04	0.05

— is not available.

Note: The intervention models and schools in each model are arranged from earliest to latest. See appendix C for definitions of variables.

a. Two high schools opened in this building in subsequent years. Changes in student body characteristics are based on the enrollment in the school that opened first.

Source: Authors' analysis based on data described in appendix C.

TABLE 4

Postintervention changes in teacher characteristics in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010 (percentage points unless otherwise indicated)

Intervention model and school	Rehired or retained (percent)	Male	White	Black	Asian	Hispanic	Average age (years)	Average years of service in Chicago Public Schools	Provisional certification	Advanced degrees
Reconstitution										
DuSable HS	66.3	2.5	4.1	–3.4	0.5	–1.2	–0.82	–0.58	–0.5	3.0
Robeson HS	47.4	–4.3	4.7	–7.9	3.2	0.0	–3.38	–4.36	7.4	–9.0
Harper Fall HS	58.6	–1.6	–4.6	6.9	–2.3	0.0	–1.04	–1.77	4.1	–1.5
Phillips HS	42.9	1.0	–3.0	–0.9	2.2	1.7	–3.60	–3.38	–1.0	–2.2
Englewood HS	46.3	–10.3	–11.6	11.6	0.0	0.0	–2.87	–0.47	11.9	4.4
King HS	42.1	–13.6	1.2	–1.2	0.0	0.0	–3.08	–1.53	5.1	–5.0
Orr HS	49.5	–5.0	–7.3	6.7	0.3	0.3	–3.14	–2.41	5.2	–0.1
Closure and restart										
Dodge ES	0.0	–15.7	9.8	–9.8	0.0	0.0	–4.90	–1.91	–9.1	24.8
Williams ES	4.7	–9.6	14.4	–25.4	10.0	1.0	–12.67	–9.23	–4.7	–11.2
Howland ES	—	—	—	—	—	—	—	—	—	—
Bunche ES	—	—	—	—	—	—	—	—	—	—
Englewood HS[a]	0.0	3.8	56.3	–45.5	–2.7	–5.4	–17.35	–10.64	30.6	0.0
Morse ES	—	—	—	—	—	—	—	—	—	—
Frazier ESa	0.0	–4.9	38.7	–30.7	–8.0	0.0	0.81	–6.44	0.0	0.0
Collins HS[a]	0.0	30.8	27.6	–25.3	–2.3	0.0	–15.68	–13.44	20.3	0.0
School Turnaround Specialist Program										
Ames MS	70.2	10.3	–11.3	3.7	–1.9	9.4	0.21	0.56	5.0	–1.4
Earle ES	66.7	8.9	–2.4	2.4	0.0	0.0	–1.12	–6.08	14.3	–20.8
Medill ES	43.8	7.1	–20.5	25.0	8.0	–12.5	–0.01	–5.25	14.3	16.1
Jackson ES	79.3	–4.1	–4.6	4.6	0.0	0.0	0.34	–0.01	9.7	–3.8
Academy for Urban School Leadership										
Sherman ES	0.0	0.0	3.2	–3.2	–3.2	3.2	–7.26	–6.07	0.0	19.4
Harvard ES	7.7	8.6	1.1	–5.1	0.0	4.0	–10.91	–8.66	–3.7	0.0
Howe ES	0.0	–2.2	28.1	–30.7	0.0	2.6	–16.27	–8.68	–1.5	17.8
Orr HS	23.5	–7.6	–16.2	14.4	–0.9	2.4	–0.04	–1.79	9.0	1.2
Morton ES	9.1	23.2	34.8	–41.4	5.6	1.0	–9.59	–7.06	–2.5	28.3
Dules ES	3.7	1.9	59.7	–59.7	0.0	0.0	–7.87	–11.88	12.5	6.0
Johnson ES	0.0	–13.2	–2.6	8.8	0.0	–6.3	–12.88	–7.63	–0.4	39.3
Bethune ES	0.0	–5.7	22.3	–24.7	–1.4	3.8	–6.00	–6.17	6.3	12.8
Office of School Improvement										
Copernicus ES	9.1	–7.1	6.1	–8.1	11.1	–4.5	–3.24	0.73	14.1	12.1
Fulton ES	5.4	15.9	23.6	–23.4	0.0	2.5	–9.61	–6.71	15.9	–0.4
Fenger HS	13.8	–3.0	17.2	–16.5	3.1	–2.6	–4.26	–6.04	23.4	–13.7
Harper HS	17.5	4.6	4.8	–12.6	7.7	0.0	–5.65	–7.99	14.4	–18.8

— is not available.

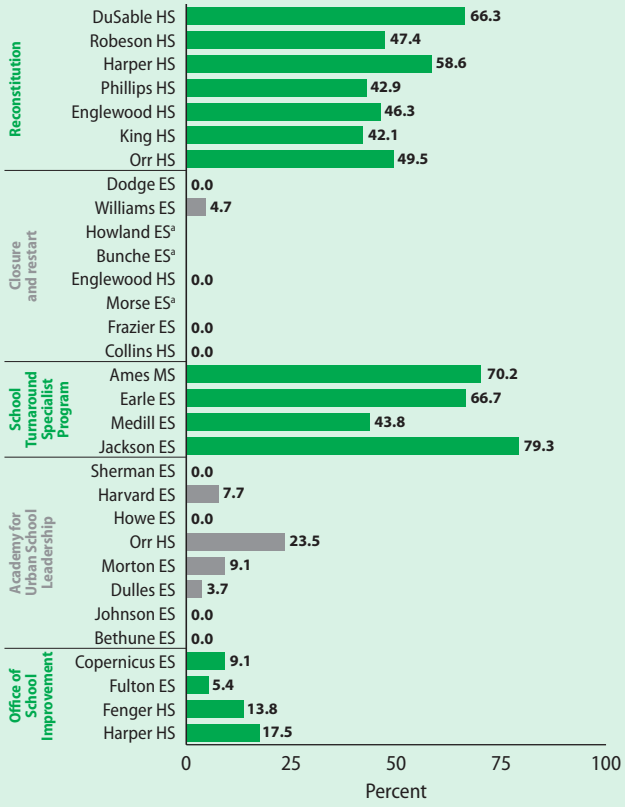
Note: The intervention models and schools in each model are arranged from earliest to latest.

a. Two schools opened up in these buildings, but data were available for only one. The second school was either a charter or contract school.

Source: Authors' analysis based on data described in appendix C.

FIGURE 5

Postintervention percentage of Chicago Public Schools teachers who were rehired or retained, by intervention model and schools in intervention over 1997–2010



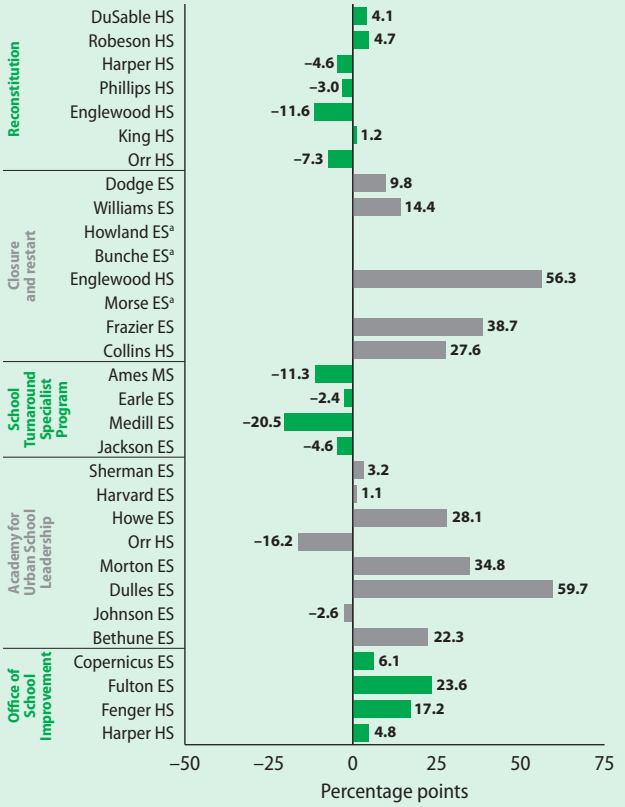
Note: The intervention models and schools in each model are arranged from earliest to latest.

a. Data not available.

Source: Authors' analysis based on data described in appendix C.

FIGURE 6

Postintervention changes in the percentage of White teachers in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010



Note: The intervention models and schools in each model are arranged from earliest to latest.

a. Data not available.

Source: Authors' analysis based on data described in appendix C.

service, average length of service with the school district declined more than five years.

- *Provisional certification.* In 18 of the 28 schools, the proportion of teachers with provisional certification was greater after intervention.[10] In all the OSI schools, teachers with provisional certifications rose more than 14 percentage points.

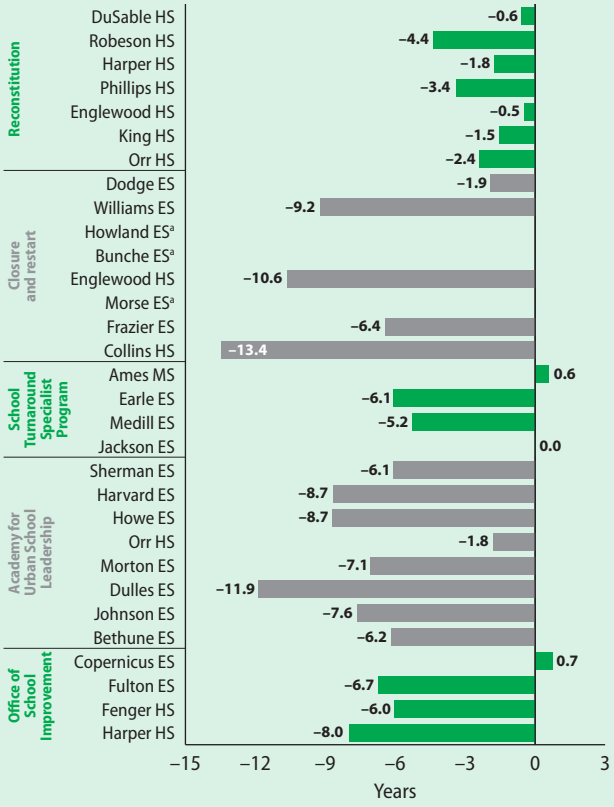
- *Advanced degrees.* In 12 of the 20 schools in the reconstitution, closure and restart, STSP, and OSI models, the percentage of teachers with advanced degrees declined. In seven of the eight AUSL schools, the percentage of teachers with advanced degrees rose 1.2–39.3 percentage points.

STUDY LIMITATIONS

This study has several limitations. Most important, the study does not provide conclusive causal evidence on the effects of school turnaround reforms. The schools selected by the district for intervention were chosen from a larger pool of low-performing schools. This study focused on a subset of Chicago Public Schools reform interventions over 1997–2010 that most resemble current federal school turnaround models. These interventions do

FIGURE 7

Postintervention change in teachers' years of experience in intervention schools in Chicago Public Schools, by intervention model and schools in intervention over 1997–2010



Note: The intervention models and schools in each model are arranged from earliest to latest.

Source: Authors' analysis based on data described in appendix C.

not align perfectly with current models of school turnaround. In addition, the overall subset of schools undergoing reform is small, and analyses are further delimited when results are compared across reform types. In addition, this study only looked at student and teacher turnover one year prior to reform and one year after. Potential pre-existing trends in student enrollment or teacher turnover were not analyzed and could account for some of the study's results. Lastly, this study does not analyze the impact of reforms on student achievement.

ISSUES FOR FUTURE RESEARCH

Because of the small number of schools that have gone through each model, there were not enough cases to identify which characteristics of the models were most predictive of student characteristics and outcomes and teacher workforce characteristics. As more school districts engage in such reform, future research might combine information on all such efforts to gain a more comprehensive understanding of the relationships. Future research might also investigate factors of specific interventions that are more or less predictive of substantial improvements in student achievement.

APPENDIX A
HISTORY OF CHICAGO'S SCHOOL REFORM EFFORTS

The Chicago School Reform Amendatory Act (P.A. 89-15) was passed in 1995 in response to growing public dissatisfaction with low levels of student achievement. The legislation increased mayoral control of public schools and gave the school system "enhanced powers over financial, managerial, and educational matters" (Wong 2000, p. 100). The authority granted to the district led to various reform initiatives aimed at poorly performing schools and increased the focus on school accountability and monitoring of schools, principals, and teachers in these poorly performing schools. Since the legislation was passed, school reform efforts in Chicago have become increasingly in step with current national education policies and broader movements to turn schools around (de la Torre and Gwynne 2009).

This project focused on the effects of several distinct district-level models put in place over 1997–2010 on student and teacher characteristics:

- Reconstitution.
- School closure and restart.
- School Turnaround Specialist Program (STSP).
- Academy for Urban School Leadership (AUSL).
- Office of School Improvement (OSI).

At the time of this study, 31 Chicago public schools serving students in grades K–12 had undergone at least one of the five models. The schools were identified as chronically low-performing and met the requirements of school interventions reserved for the lowest performing schools in the country, as defined by the U.S. Department of Education. Some schools experienced more than one intervention model over 1997–2010. See appendix B for detailed descriptions of the schools.

Reconstitution

Reconstitution efforts were implemented over the summer of 1997 in seven low-performing high schools. All faculty and staff were removed from their positions and required to reapply for their jobs; faculty who were not rehired were replaced. Four principals were replaced, and three were rehired (Hess 2003). This model followed the district's newly adopted Design for High Schools, which focused on academic press and personalization in all high schools.[11] Strategies included revising academic standards and introducing career academies. Reconstitution schools employed a third lever of change: replacement of staff. In addition, the schools were assigned a probation manager (Finnigan and O'Day 2003). The goal was to improve student performance on state tests, though it is unclear whether any targets or timelines were set (Chicago Public Schools 1999). Reconstitution was not used after 1997.

School closure and restart

Over 2002–09, six elementary schools and two high schools were closed for low academic performance. Tenured teachers were reassigned, untenured teachers and other staff members were laid off, and the schools remained closed for at least one school year. When schools closed, more than 95 percent of the displaced students remained in public schools, most often at other neighborhood schools (de la Torre and Gwynne 2009). The schools then reopened as traditional, charter, contract, or performance schools.[12] These new schools were open to all students across the city through a lottery. Many of the restarted schools served different grade levels than had the schools they replaced. Two of the schools, one elementary school and one high school, were designated professional development schools for the teacher training program run by the AUSL (see below).

The majority of new schools were opened under Chicago's Renaissance 2010 initiative, giving them "more freedom than traditional public schools in return for high levels of accountability" (Chicago Public Schools 2010a).[13] Renaissance 2010 schools received financial support of as much as $500,000 for one to three years. Charter renewal (after five years) depended on schools meeting targets for

attendance, graduation rate, and composite and growth scores on state tests.

School Turnaround Specialist Program

In 2006, four low-performing elementary/middle schools were placed in the STSP, administered by the University of Virginia's Partnership for Leaders in Education. Focusing on leadership, the program trained principals to be "turnaround specialists." Three of the schools received new principals. All four principals received training in best practices in education and business, including analyzing data, making decisions, setting targets, and creating action plans (Partnership for Leaders in Education 2010). Each principal had three goals: meet adequate yearly progress requirements, reduce the reading and math failure rates by at least 10 percent each, and receive a "meets" or "exceeds" rating on the annual evaluation (Flavia Hernandez, personal communication, March 19, 2010; Adrian Willis, personal communication, March 23, 2010). In addition, each school set goals in academic achievement, attendance, parent involvement, professional development, and student discipline referrals. Principals received various supports and incentives, including $100 per student in the 2006/07 and 2007/08 school years, consulting visits from an experienced administrator, a signing bonus, and a contract that included graduated bonuses for meeting two, three, or four of the targets (Public Impact 2008).

Academy for Urban School Leadership

Over 2006–2009, seven low-performing elementary schools and one low-performing high school were placed under the AUSL, a local school management organization charged with training teachers to achieve whole-school transformations. A residency program combines a year-long mentored teaching program at an AUSL-administered school in Chicago with evening graduate-level courses (Academy for Urban School Leadership 2010). Schools in this model replaced their entire staff; most new staff were trained in the AUSL residency program. The schools also hired new principals committed to the model. Tailored goals were created for each school, with a focus on increasing attendance and student achievement on state tests and reducing incidents of student misconduct (Bridget Altenburg, personal communication, March 27, 2010; Christina Fradelos, personal communication, March 27, 2010). Additional funding from a variety of sources (including Chicago Public Schools, the Teacher Quality Partnership grant, and the Bill & Melinda Gates Foundation) enabled the district and schools to hire more staff, organize youth guidance and other programs, and renovate school buildings (Academy for Urban School Leadership 2010). In 2010, four more schools were placed in this model; they were not included in this study because postintervention data were not available at the time of the study.

Office of School Improvement

In 2008 and 2009, the district identified two low-performing elementary schools and two low-performing high schools to be turned around under the OSI. Teachers were terminated at the conclusion of the school year, and new faculties were hired over the summer. In 2010, another high school was placed in this model, but it was not part of this study because of the lack of postintervention data. In three of the four schools, the principal was replaced. The model focuses initially on stabilizing the school and developing a positive learning climate and culture. At the end of the first year of turnaround, the focus turns to teaching and learning. The two elementary schools received additional financial support over five years, with the level of support declining over time (Chicago Public Schools 2009a). The goal is to achieve significant gains on state assessments in year 2 (Chicago Public Schools 2009b); increase the attendance rate, graduation rate, and parent satisfaction; and reduce student misconduct.

School selection criteria

Although schools were identified as chronically low-performing and selected to undergo a particular reform (see below), they were not the only low-performing schools in the district. The criteria for selecting these schools and not others have

not always been apparent. In more recent years, Chicago Public Schools (2010b) reported that the district chief executive officer might consider closing schools or enacting "other turnaround measures" if a school fails to earn at least 33.3 percent of available performance points under the district Performance Policy for two consecutive years (Morgan and Harding 2006). If a school meets one of the following exclusion factors, however, it will be removed from consideration:

- For an elementary school, the contract principal has been in place for two years or less.
- The school is subject to an agreement with the Chicago Teachers Union, which prohibits closure for academic reasons.
- The school has served as a receiving school for reassigned students as a result of a school closure or consolidation in the last two years.
- There are no schools within 1.5 miles of students' homes that have performed better under the district Performance Policy and that have unimpeded safe passage for students or it is impractical to transport transitioning students to higher performing schools with available space that can meet the students' education needs.

In addition, the chief executive officer may consider feasibility factors, such as receiving-school limitations of space, facility conditions, and ability to provide appropriate services.

APPENDIX B
DESCRIPTION OF INTERVENTION SCHOOLS

The tables in this appendix present the characteristics of the intervention schools.

TABLE B1

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Reconstitution							
Summer 1997	DuSable HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Went through intervention[a] in fall 2000. Closed at the end of 2005/06.
Summer 1997	Englewood HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Reengineered in fall 1999.[b] Closed at the end of 2007/08.
Summer 1997	Harper HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Reengineered in fall 1999. Became a school supported by the Office of School Turnaround in fall 2008. Instructional Development System[c] intervention starting in the fall of 2008.
Summer 1997	King HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Began a transition to become a selective enrollment school by enrolling no freshmen in fall 1999.

(CONTINUED)

TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Summer 1997	Orr HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Went through intervention in fall 2000. Closed at the end of 2003/04. Three high schools that replaced Orr were turned around by Academy for Urban School Leadership (AUSL) in fall 2008. Instructional Development System intervention starting in fall 2008.
Summer 1997	Phillips HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Reengineered in fall 1999. Instructional Development System intervention starting in fall 2006. Will be an AUSL school in fall 2010.
Summer 1997	Robeson HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Reengineered in fall 1999. Instructional Development System intervention starting in fall 2008.
Closure and restart							
Closed at the end of 2001/02; reopened in fall 2003	Dodge ES	Dodge Renaissance Academy	K–8	K–8 (K–8)	Contract	Accepts students citywide through random lottery	Starting in fall 2003, it became a professional development school for AUSL.

(CONTINUED)

TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Closed at the end of 2001/02; reopened in fall 2003 as four separate schools (one served high school grades)	Williams ES	Williams Multiplex	K–8	K–3 (K–5)	Contract	Accepts students citywide through random lottery	
	Williams Prep Academy		4–8 (6–8)	Contract	Accepts students citywide through random lottery		
	KIPP Chicago Youth Village Academy		4–5 (5–7)	Contract	Accepts students citywide through random lottery	Closed at the end of 2005/06. The Knowledge Is Power Program foundation believed its model was best suited to the charter school environment.	
Closed at the end of 2004/05; reopened in fall 2006	Howland ES	Catalyst Charter—Howland	K–8	4–5 (K–8)	Charter	Accepts students citywide through random lottery	Renaissance 2010 school.
Closed at the end of 2004/05; reopened in fall 2006	Bunche ES	Providence Englewood Charter—Bunche	K–8	K–5 (K–8)	Charter	Accepts students citywide through random lottery	Renaissance 2010 school.
Stopped taking freshmen in fall 2005 and closed at the end of 2007/08; two new schools opened up, one in fall 2006 and the other in fall 2007	Englewood HS	Urban Prep Academy for Young Men Charter—Englewood	9–12	9 (9–12)	Charter	Accepts students citywide through random lottery	Renaissance 2010 school.
	TEAM Englewood		9 (9–12)	Performance	Accepts students citywide through random lottery	Renaissance 2010 school.	

(CONTINUED)

TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Closed at the end of 2005/06; reopened in fall 2007.	Frazier ES	Frazier International Magnet	K–8	K–5 (K–8)	Performance	Accepts students citywide through random lottery	Renaissance 2010 school.
	Frazier Preparatory Academy		K–5 (K–8)	Contract	Accepts students citywide through random lottery	Renaissance 2010 school.	
Closed at the end of 2005/06; reopened in fall 2007	Morse ES	Polaris Charter Academy	K–8	K–2 (K–8)	Charter	Accepts students citywide through random lottery	Renaissance 2010 school.
Stopped taking freshmen in fall 2006 and closed at the end of 2008/09; two new schools opened up in fall 2007	George Collins HS	Collins Academy	9–12	9 (9–12)	Performance	Accepts students citywide through random lottery	AUSL professional development school. Instructional Development System intervention starting in fall 2007. Renaissance 2010 school.
	North Lawndale College Prep Charter—Collins		9 (9–12)	Charter		Accepts students citywide through random lottery	Renaissance 2010 school.
School Turnaround Specialist Program							
Turnaround in fall 2006	Ames MS	—	7–8	7–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in fall 2006	Medill ES	—	K–7	K–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Consolidated with Smyth in fall 2009.

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TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Turnaround in fall 2006	Mahalia Jackson ES	—	K–8	K–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in fall 2006	Charles Earle ES	—	K–8	K–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Academy for Urban School Leadership							
Turnaround in the fall 2006	Sherman ES	Sherman School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Renaissance 2010 school.
Turnaround in the fall 2007	John Harvard ES	Harvard School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Renaissance 2010 school.
Turnaround in the fall 2008	Orr Campus HS	Orr Academy	9–12	9–12	Performance	Open to students living in attendance area; the college and career academies accept students citywide by application	

(CONTINUED)

TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Turnaround in the fall 2008	Howe ES	Howe Elementary School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2008	Morton ES	Morton School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2009	McLeod Bethune ES	Bethune School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2009	Dulles ES	Dulles School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2009	Johnson ES	Johnson School of Excellence	K–8	K–8	Performance	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	Renaissance 2010 school.

(CONTINUED)

TABLE B1 (CONTINUED)

Description of intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010

Intervention model and timing	Original school name	New school name	Grades served before intervention	Grades served first year after intervention (at full capacity)	School governance after intervention	Attendance rules	Later changes and other supports
Office of School Improvement							
Turnaround in the fall 2008	Harper HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2008	Fulton ES	—	K–8	K–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2008	Copernicus ES	—	K–8	K–8	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	
Turnaround in the fall 2009	Fenger HS	—	9–12	9–12	Traditional	Open to students living in attendance area; if space is available, applicants living outside the attendance area may attend	

— indicates no change in school name.

Note: The intervention models and schools in each model are arranged from earliest to latest.

a. Intervention was designed after the delays in the reengineering process. Expert teachers in each core subject were installed in the high schools to assist teachers in their department and evaluate the capacity of teachers in their subject area. Teachers who were judged as weak were supposed to be fired. Intervention was judged as ineffective by central office staff and eliminated after the 2001/02 school year. Five high schools went through intervention.

b. Reengineering was a process of teacher peer review. Teachers with weak skills were supposed to get support from a mentoring teacher for a year, and if they failed to improve, they were counseled to leave the profession. Twelve high schools were placed in this category, but few peer review committees were formed and no teachers were reviewed.

c. The Instructional Development System focuses on increasing the rigor and relevance of high school courses by using a unified system of curricular strategies, classroom materials, assessments, professional development, and personalized teacher coaching. Participating schools can choose from two or three instruction options in English, math, and science.

Source: Information based primarily on the Chicago Public Schools website and related articles.

APPENDIX C
DATA AND DATA SOURCES

Definitions of variables used in descriptive analyses

Student data. Student data came from Chicago Public Schools 1996/97–2009/10 administrative data.[14] Student addresses were linked to data from the U.S. Census Bureau (2000) at the block group level. Social capital and the concentration of poverty in a student's neighborhood were calculated using figures from U.S. Census Bureau (2000). Student variables are defined as follows:

- *Student identification.* Student's unique identification code.
- *School enrollment.* School student attended.
- *Race/ethnicity.* Whether a student was Asian, Black, Hispanic, White, or other.
- *Gender.* Whether a student was male or female.
- *Grade.* Student's grade level.
- *Distance traveled to school.* The distance in miles from the student's address to the school's address was calculated after both addresses were geocoded.
- *Special education.* Whether a student was receiving special education services.
- *Over-age for grade.* A dummy variable to indicate whether students were older than would be expected for their grade, based on school system guidelines and the student's birth date.
- *Neighborhood concentration of poverty.* Based on data from U.S. Census Bureau (2000) on the Census block group in which students lived. Students' home addresses were used to link each student to a block group within the city, which could then be linked to Census data on the economic conditions of the student's neighborhood. Two indicators were used to construct these variables: the log of the percentage of households above the poverty line and the log of the percentage of men employed in the block group.
- *Neighborhood social status.* Based on data from the U.S. Census Bureau (2000) on the Census block group in which students lived. Students' home addresses were used to link each student to a block group within the city, which could then be linked to Census data on the economic conditions of the student's neighborhood. Two indicators were used to construct these variables: the average level of education among adults over age 21 and the log of the percentage of men in the block group employed as managers or executives.

Teacher data. Teacher data were obtained from Chicago Public Schools personnel records for 1996/97–2009/10. Information was not available on teachers in charter schools and some contract schools because teachers in these schools are employed by independent nonprofit organizations, not by Chicago Public Schools. Teacher variables used in the descriptive analysis include the following:

- *Teacher identification.* Teacher's unique identification code.
- *Active teachers.* Teachers working in the school at any time between November 1 and June 1 of the school year.
- *Gender.* Whether a teacher is male or female.
- *Race/ethnicity.* Whether a teacher is Asian, Black, Hispanic, White, or other.
- Advanced degrees. Whether a teacher has a master's or doctoral degree. Master's and doctoral degree dummy variables were collapsed to indicate teachers with an advanced degree.
- *Provisional certification.* Teachers who have not acquired any of the four certificates required in Illinois (elementary education, early

TABLE C1

Source of student, teacher, and school variables included in the analysis of intervention and comparison schools in Chicago Public Schools

Variable	Data source
• Students • Student identifier • School enrollment • Race/ethnicity • Gender • Grade • Address • Special education • Birth date	Chicago Public Schools Student Administrative Records
Neighborhood concentration of poverty and social status	U.S. Census Bureau
• Iowa Tests of Basic Skills scores • Illinois Standards Achievement Test scores • Tests of Achievement and Proficiency scores • Prairie State Achievement Examination scores	Chicago Public Schools Test Data
• Teachers • Teacher identifier • Active Status • Gender • Race/ethnicity • Degree attained • Certification • First hired by Chicago Public Schools • Birth date	Chicago Public Schools Teacher Personnel Records
School address	Chicago Public Schools School-Level Data

childhood education, secondary education, and special education) are assumed to have provisional certification.

- *Years of Chicago Public Schools service.* Derived from the date hired into Chicago Public Schools subtracted from November 1 of the school year.
- *Age.* Calculated using a date of birth variable, where date of birth was subtracted from the November 1 of the intervention year. After 2007, age was calculated using a birth year variable, where the birth year was subtracted from the fall year of intervention.

APPENDIX D METHODOLOGY

This appendix describes the study methodology for each research question.

Did the characteristics of students change in intervention schools?

To determine whether the student composition changed in intervention schools, the characteristics of students who attended schools in September of the year before the intervention were compared with the characteristics of students in September of the first year of the intervention, using descriptive statistics. The sample consisted of students who were in the schools at those times. Data on student composition came from individual student administrative records that the Consortium on Chicago School Research received from Chicago Public Schools, including student race/ethnicity, age, gender, academic achievement, and special education status (see appendix C for a description of the data and data sources). Students' home addresses were used to determine whether schools continued to serve students from the same neighborhoods. Addresses were linked to information from the Census at the block-group level to create indicators of poverty and social status—to determine whether the types of students being served by the school changed after intervention.

Most closure and restart schools reopened with different grade structures. The analyses include only similar grades. (See table B1 in appendix B for a list of the grade levels served by the old and new schools.) For example, Englewood High School, a 9–12 high school before closure, served only grade 9 when it reopened and then added a grade each year. In that case, the analysis compared the new grade 9 students with the last group of grade 9 students to attend the school before intervention. Table D1 lists the descriptive student characteristics by school and the number of students in the sample.

Did the characteristics of teachers change in the intervention schools?

To determine whether teacher composition changed in schools after intervention, the characteristics of teachers who worked at these schools in the year before the intervention were compared with the characteristics of teachers who worked at the schools in the first year of the intervention, using descriptive statistics. The data came from Chicago Public Schools personnel records (see appendix C for details on data sources and variables). These records contain information on academic degrees (bachelor's, master's, doctorate), years of experience in Chicago Public Schools, demographic characteristics (age, race/ethnicity, gender), and certifications. Chicago Public Schools personnel records do not include information on teachers in charter schools or contract schools. Therefore, three schools in the closure and restart model that reopened as charter or contract schools were not included in this analysis. Table D2 details teacher descriptive characteristics by school and the sample size of each comparison.

TABLE D1

Descriptive characteristics of students in intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010 (percent unless otherwise indicated)

Intervention model and school	Year before intervention and first year of intervention (fall of each year)	Male	Black	Hispanic	Over age for grade	Special education	Average neighborhood concentration of poverty (standard deviation)	Average neighborhood social capital (standard deviation)	Average distance traveled to school (miles)	Average incoming reading performance (standard deviations)	Student enrollment	Students re-enrolled (of those eligible)[a]
Reconstitution												
DuSable HS	1996	46.8	99.5	0.1	57.7	17.2	1.43	−0.73	na	−0.46	1,481	58.7
	1997	50.2	99.5	0.3	48.8	21.3	1.44	−0.70	1.08	−0.46	1,183	55.8
Robeson HS	1996	54.6	99.9	0.1	58.1	17.2	0.66	−0.36	na	−0.40	1,371	67.0
	1997	55.8	99.4	0.3	58.9	20.8	0.68	−0.35	1.29	−0.38	1,179	62.3
Harper HS	1996	54.0	99.3	0.6	53.2	17.0	0.49	−0.51	na	−0.50	1,631	62.9
	1997	55.0	99.0	0.8	49.1	18.2	0.49	−0.53	0.98	−0.53	1,476	55.3
Phillips HS	1996	53.4	99.9	0.0	57.3	21.4	1.49	−0.57	na	−0.61	1,194	50.9
	1997	49.1	99.6	0.1	57.8	22.3	1.43	−0.56	1.40	−0.61	982	61.6
Englewood HS	1996	53.1	99.4	0.2	56.4	18.7	0.87	−0.56	na	−0.52	1,366	65.9
	1997	50.0	99.9	0.0	50.2	20.0	0.86	−0.50	1.40	−0.45	1,061	58.4
King HS	1996	47.8	99.3	0.4	46.2	15.1	1.26	−0.61	na	−0.43	827	59.7
	1997	45.5	99.4	0.4	40.8	15.9	1.22	−0.55	1.71	−0.42	679	60.9
Orr HS	1996	49.8	94.4	5.2	53.0	12.8	0.51	−0.70	na	−0.50	1,306	61.7
	1997	52.1	92.5	7.4	57.4	15.1	0.52	−0.72	1.01	−0.45	1,060	56.8
Closure and restart												
Dodge ES	2001	49.0	99.7	0.3	29.5	23.7	0.93	−0.54	0.93	−0.54	312	62.8
	2003	50.1	99.4	0.3	31.2	13.6	0.98	−0.52	1.18	−0.38	359	46.5
Williams ES	2001	47.5	99.7	0.0	21.6	7.7	1.77	−0.72	0.31	−0.43	727	74.1
	2003	53.3	99.7	0.0	28.7	6.0	1.61	−0.65	1.36	−0.5	383	31.1
Howland ES	2004	48.7	97.4	2.6	50.0	10.5	1.83	−0.57	0.24	−0.38	76	38.7
	2006	56.3	99.2	0.8	17.6	5.9	1.12	−0.58	1.49	−0.30	119	15.5
Bunche ES	2004	52.2	99.3	0.0	24.1	5.5	1.16	−0.67	0.42	−0.46	274	41.6
	2006	46.5	100.0	0.0	7.4	3.5	0.90	−0.40	1.63	0.09	202	11.8
Englewood HS	2004	59.1	99.5	0.3	48.3	27.8	1.09	−0.41	1.58	−0.60	381	28.6
	2006[b]	99.4	99.4	0.6	33.3	14.4	0.91	−0.32	2.23	−0.17	174	0.0
Morse ES	2005	51.0	98.7	1.3	13.7	8.5	0.98	−0.73	0.46	−0.26	153	41.8
	2007	44.0	86.2	12.9	2.6	5.2	0.76	−0.49	1.82	na[c]	116	11.4
Frazier ES	2005	46.5	99.3	0.7	31.1	9.0	1.21	−0.75	0.72	−0.35	299	60.2
	2007	47.8	97.8	1.1	11.0	7.4	1.04	−0.59	1.77	−0.40	272	8.9
Collins HS	2005	53.1	99.4	0.6	51.8	26.4	1.25	−0.60	1.51	−0.46	326	46.7
	2007	40.7	95.8	4.2	26.2	19.2	1.03	−0.59	1.86	−0.23	214	0.0
School Turnaround Specialist Program												
Ames MS	2005	50.7	7.3	90.4	28.6	16.4	0.28	−1.09	0.48	−0.27	768	76.9
	2006	46.8	7.4	90.5	28.3	15.1	0.27	−1.08	0.58	−0.22	819	88.6
Earle ES	2005	50.9	99.8	0.0	27.0	12.0	1.35	−0.84	0.43	−0.39	548	69.8
	2006	51.5	100.0	0.0	26.5	9.8	1.34	−0.80	0.52	−0.59	480	64.1

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TABLE D1 (CONTINUED)

Descriptive characteristics of students in intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010 (percent unless otherwise indicated)

Intervention model and school	Year before intervention and first year of intervention (fall of each year)	Male	Black	Hispanic	Over age for grade	Special education	Average neighborhood concentration of poverty (standard deviation)	Average neighborhood social capital (standard deviation)	Average distance traveled to school (miles)	Average incoming reading performance (standard deviations)	Student enrollment	Students re-enrolled (of those eligible)[a]
Medill ES	2005	49.8	99.5	0.5	32.9	13.2	1.82	–1.28	0.51	–0.61	219	68.6
	2006	49.7	100.0	0.0	30.1	15.0	1.81	–1.25	0.33	–0.85	173	72.1
Mahalia Jackson ES	2005	61.7	98.9	1.1	32.9	29.3	0.39	0.07	0.95	–0.45	368	74.7
	2006	62.3	99.2	0.8	34.4	27.0	0.39	0.07	0.82	–0.54	355	75.2
Academy for Urban School Leadership												
Sherman ES	2005	51.2	98.6	1.3	27.4	9.3	1.08	–0.54	0.36	–0.46	559	73.3
	2006	51.3	97.8	1.7	25.9	11.9	1.10	–0.51	0.36	–0.64	587	72.7
Harvard ES	2006	54.0	99.0	0.4	30.4	6.5	1.04	–0.30	0.45	–0.69	494	65.8
	2007	54.9	98.8	0.8	23.7	5.9	1.09	–0.27	0.38	–0.58	490	68.1
Howe ES	2007	49.0	99.6	0.2	23.6	11.3	0.81	–0.55	0.32	–0.63	559	66.0
	2008	49.1	99.6	0.2	18.3	10.2	0.79	–0.55	0.43	–0.41	491	68.9
Orr HS	2007	50.8	90.6	8.8	46.4	29.9	0.76	–0.65	1.29	–0.53	1,379	67.7
	2008	51.8	91.3	8.5	39.6	29.0	0.79	–0.64	1.25	–0.53	1,190	65.2
Morton ES	2007	48.2	98.0	2.0	32.2	12.5	1.01	–0.86	0.57	–0.74	255	52.1
	2008	50.8	95.0	4.6	28.2	14.3	0.97	–0.84	0.60	–0.55	238	57.1
Dulles ES	2008	47.1	99.7	0.0	19.7	8.9	1.42	–0.84	0.27	–0.55	395	64.0
	2009	49.0	99.8	0.0	18.3	7.3	1.41	–0.82	0.26	–0.40	410	76.6
Johnson ES	2008	49.4	99.1	0.9	20.4	14.0	1.61	–0.65	0.47	–0.44	235	61.6
	2009	46.7	100.0	0.0	18.6	11.6	1.57	–0.68	0.74	–0.43	242	63.1
Bethune ES	2008	51.3	99.4	0.6	31.8	8.5	1.17	–0.48	0.43	–0.67	318	76.0
	2009	52.8	100.0	0.0	30.2	10.3	1.19	–0.46	0.41	–0.72	341	70.9
Office of School Improvement												
Copernicus ES	2007	49.9	98.9	0.3	27.5	11.6	1.13	–0.41	0.47	–0.79	353	65.5
	2008	54.0	99.4	0.0	24.9	10.5	1.17	–0.44	0.57	–0.57	313	63.5
Fulton ES	2007	53.4	84.9	14.8	27.9	6.8	1.00	–0.39	0.49	–0.68	577	54.2
	2008	54.7	84.1	15.4	23.4	7.8	0.99	–0.38	0.53	–0.63	591	64.6
Fenger HS	2008	50.0	99.4	0.2	38.4	21.3	0.62	–0.24	1.51	–0.51	1,212	71.2
	2009	48.5	99.4	0.3	40.0	19.0	0.67	–0.25	1.44	–0.52	1,187	73.8
Harper HS	2008	57.7	99.5	0.2	62.1	26.8	1.03	–0.54	0.93	–0.58	1,274	70.2
	2009	52.4	99.7	0.1	56.8	25.6	1.03	–0.53	0.97	–0.53	946	55.3

na is not available.

Note: The intervention models and schools in each model are arranged from earliest to latest. See appendix C for definitions of variables.

a. For closure and restart schools, calculations reflect length of closure. For example, if a school closed in 2001 and reopened in 2003, the percentage of students reenrolled in fall 2003 is calculated using student enrollment in fall 2001 and fall 2003, and the percentage of students reenrolled in fall 2001 is calculated using student enrollment from fall 1999 to fall 2001 (to reflect the two-year gap). To make these numbers analogous, the same grades are compared both times.

b. Two high schools opened in this building in two different years, one in fall 2006 and the other in fall 2007. Student characteristics are based on the enrollment of the school that opened first.

c. This school reopened only with early elementary grades. Because testing starts in third grade in Chicago Public Schools, none of the incoming students had been tested previously.

Source: Authors' analysis based on data described in appendix C.

TABLE D2

Descriptive characteristics of teachers in intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010 (percent unless otherwise indicated)

Intervention model and school	Year before intervention and first year of intervention (fall of each year)	Number of teachers	Male	Asian	Black	Hispanic	White	Advanced degree	Average age (years)	Average service with Chicago Public Schools (years)	Provisional certification
Reconstitution											
DuSable HS	1996	86	44.2	1.2	65.1	1.2	32.6	57.0	49.38	16.87	10.5
	1997	60	46.7	1.7	61.7	0.0	36.7	60.0	48.56	16.29	10.0
Robeson HS	1996	78	33.3	0.0	75.6	0.0	24.4	59.0	50.67	19.85	3.8
	1997	62	29.0	3.2	67.7	0.0	29.0	50.0	47.29	15.48	11.3
Harper HS	1996	87	39.1	2.3	64.4	0.0	33.3	54.0	45.34	14.92	3.4
	1997	80	37.5	0.0	71.3	0.0	28.8	52.5	44.30	13.15	7.5
Phillips HS	1996	91	40.7	1.1	69.2	0.0	29.7	53.8	48.98	14.20	11.0
	1997	60	41.7	3.3	68.3	1.7	26.7	51.7	45.38	10.82	10.0
Englewood HS	1996	80	46.3	0.0	71.3	0.0	28.8	48.8	50.52	17.29	3.8
	1997	64	35.9	0.0	82.8	0.0	17.2	53.1	47.66	16.82	15.6
King HS	1996	57	31.6	0.0	80.7	0.0	19.3	61.4	52.15	19.58	0.0
	1997	39	17.9	0.0	79.5	0.0	20.5	56.4	49.07	18.04	5.1
Orr HS	1996	91	40.7	1.1	49.5	1.1	48.4	49.5	50.21	18.25	4.4
	1997	73	35.6	1.4	56.2	1.4	41.1	49.3	47.07	15.84	9.6
Closure and restart											
Dodge ES	2001	22	27.3	0.0	63.6	0.0	36.4	63.6	46.80	13.12	9.1
	2003	26	11.5	0.0	53.8	0.0	46.2	88.5	41.90	11.21	0.0
Williams ES	2001	43	16.3	0.0	72.1	2.3	25.6	51.2	49.16	15.94	4.7
	2003	30	6.7	10.0	46.7	3.3	40.0	40.0	36.49	6.71	0.0
Howland ES	2004	22	13.6	4.5	41.0	0.0	54.5	27.3	39.86	8.69	4.6
	2006	na	na	na	na	na	na	na	na	na	na
Bunche ES	2004	16	18.8	0.0	75.0	0.0	25.0	68.8	51.79	20.11	3.3
	2006	na	na	na	na	na	na	na	na	na	na
Englewood HS[a,b]	2004	37	37.8	2.7	62.2	5.4	27.0	0.0	47.62	13.15	2.7
	2006	12	41.7	0.0	16.7	0.0	83.3	0.0	30.27	2.51	33.3
Morse ES	2005	30	13.0	3.3	50.0	0.0	43.3	46.7	43.21	9.99	3.3
	2007	na	na	na	na	na	na	na	na	na	na
Frazier ES[a]	2005	25	16.0	8.0	64.0	0.0	28.0	0.0	53.16	16.94	0.0
	2007	9	11.1	0.0	33.3	0.0	66.7	0.0	53.97	10.50	0.0
Collins HS[a,b]	2005	43	44.2	2.3	62.8	0.0	34.9	0.0	54.81	16.51	4.7
	2007	8	75.0	0.0	37.5	0.0	62.5	0.0	39.13	3.07	25.0
School Turnaround Specialist Program											
Ames MS	2005	47	36.2	4.3	14.9	25.5	53.2	59.6	42.90	8.83	4.3
	2006	43	46.5	2.3	18.6	34.9	41.9	58.1	43.11	9.39	9.3
Earle ES	2005	24	12.5	0.0	83.3	0.0	16.7	70.8	48.90	17.17	0.0
	2006	28	21.4	0.0	85.7	0.0	14.3	50.0	47.78	11.09	14.3

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TABLE D2 (CONTINUED)

Descriptive characteristics of teachers in intervention schools in Chicago Public Schools, by intervention model and school, 1997–2010 (percent unless otherwise indicated)

Intervention model and school	Year before intervention and first year of intervention (fall of each year)	Number of teachers	Male	Asian	Black	Hispanic	White	Advanced degree	Average age (years)	Average service with Chicago Public Schools (years)	Provisional certification
Medill ES	2005	16	0.0	6.3	25.0	12.5	56.3	12.5	44.65	13.12	0.0
	2006	14	7.1	14.3	50.0	0.0	35.7	28.6	44.64	7.87	14.3
Mahalia Jackson ES	2005	29	13.8	0.0	79.3	0.0	20.7	58.6	45.75	15.19	0.0
	2006	31	9.7	0.0	83.9	0.0	16.1	54.8	46.09	15.18	9.7
Academy for Urban School Leadership											
Sherman ES	2005	31	19.4	6.5	54.8	0.0	38.7	45.2	44.88	11.30	6.5
	2006	31	19.4	3.2	51.6	3.2	41.9	64.5	37.62	5.23	6.5
Harvard ES	2006	26	15.4	0.0	73.1	0.0	26.9	0.0	51.64	14.14	7.7
	2007	25	24.0	0.0	68.0	4.0	28.0	0.0	40.74	5.48	4.0
Howe ES	2007	27	22.2	0.0	74.1	7.4	18.5	55.6	49.38	11.35	14.8
	2008	30	20.0	0.0	43.3	10.0	46.7	73.3	33.11	2.67	13.3
Orr HS	2007	98	43.9	3.1	30.6	3.1	61.2	58.2	44.86	7.16	17.3
	2008	91	36.3	2.2	45.1	5.5	45.1	59.3	44.82	5.37	26.4
Morton ES	2007	22	4.5	0.0	63.6	4.5	31.8	27.3	50.81	10.41	13.6
	2008	18	27.8	5.6	22.2	5.6	66.7	55.6	41.23	3.36	11.1
Dulles ES	2008	27	14.8	0.0	88.9	0.0	11.1	48.1	51.24	14.16	0.0
	2009	24	16.7	0.0	29.2	0.0	70.8	54.2	43.37	2.29	12.5
Johnson ES	2008	16	25.0	0.0	50.0	6.3	43.8	31.3	50.40	11.23	6.3
	2009	17	11.8	0.0	58.8	0.0	41.2	70.6	37.52	3.61	5.9
Bethune ES	2008	19	21.1	5.3	63.2	0.0	31.6	52.6	46.75	7.74	5.3
	2009	26	15.4	3.8	38.5	3.8	53.8	65.4	40.75	1.56	11.5
Office of School Improvement											
Copernicus ES	2007	22	18.2	0.0	63.6	4.5	27.3	54.5	45.28	8.47	13.6
	2008	18	11.1	11.1	55.6	0.0	33.3	66.7	42.03	9.20	27.8
Fulton ES	2007	37	10.8	0.0	56.8	10.8	29.7	27.0	48.34	9.96	10.8
	2008	30	26.7	0.0	33.3	13.3	53.3	26.7	38.73	3.24	26.7
Fenger HS	2008	80	37.5	3.8	62.5	3.8	28.8	56.3	49.57	9.34	8.8
	2009	87	34.5	6.9	46.0	1.1	46.0	42.5	45.31	3.30	32.2
Harper HS	2008	80	30.0	0.0	60.0	1.3	38.8	65.0	49.75	12.17	12.5
	2009	78	34.6	7.7	47.4	1.3	43.6	46.2	44.10	4.18	26.9

na is not available.

Note: The intervention models and schools in each model are arranged from earliest to latest. See appendix C for definitions of variables.

a. Two schools opened in these buildings, but data were available for only one. The other school was either a charter school or a contract school.

b. These two high schools were phased out grade by grade and at the same time new schools opened in the building. Teachers were compared on the basis of the teacher workforce the first year of the new school and the teacher workforce left in the phasing-out school the previous year.

Source: Authors' analysis based on data described in appendix C.

NOTES

1. These five intervention models are not the only reform efforts undertaken by Chicago schools over this period. The models examined here were at the district level. Principals might have implemented individual school reform efforts to boost student achievement.

2. Teachers in the STSP model were not fired and replaced, as in other models. These numbers reflect natural attrition in teacher workforce over that period of time.

3. Schools in the reconstitution model likely saw a decrease in enrollment, in part because of a policy enacted by the district in 1997 that required low-performing grade 8 students to achieve minimum scores on reading and math tests before advancing to high school. This reduced the number of students eligible to start grade 9 in 1997.

4. Even though the schools served fewer students per grade after intervention, there is not enough information to determine whether this translated into smaller class sizes.

5. Data were not available on distance traveled to school for students in the reconstitution schools.

6. One closure and restart model school enrolled only male students after it reopened, hence an increase in the male population of 40.4 percent.

7. Schools in the reconstitution model had only the summer to hire teachers for their schools.

8. Illinois teachers are required to have one of four main certificates: early childhood education, elementary education, secondary education, or special education. Teachers without these required certifications were counted as having a provisional certification.

9. Academic press is engaging students in learning and teachers in teaching through rigorous and consistent academic expectations. Academic personalization is creating caring, personalized experiences and environments.

10. Charter schools are independently operated public schools that are not subject to the same state laws, district initiatives, and board policies as are traditional public schools but are operated pursuant to the Illinois Charter Law. Teachers are employees of the nonprofit governing board or education management organization hired by the nonprofit board. Contract schools, independently operated public schools under Renaissance 2010, operate pursuant to the Illinois School Code, are managed by an independent nonprofit organization, and employ teachers who work for the nonprofit. Contract schools have an advisory body of parents, community members, and staff. Performance schools are operated by the Chicago Public Schools district and employ district teachers and staff. The schools are subject to the collective bargaining agreement between Chicago Public Schools and the Chicago Teachers Union and other labor organizations. They have flexibility, however, in such areas as curriculum, school schedule, and budget. Performance schools have an alternative local school council that enables parents, community members, and staff to be involved in all aspects of the school's activities.

11. The Renaissance 2010 initiative was launched in 2004 to create more high-quality educational options across Chicago. Any new school opened in Chicago since 2005 has been labeled a "Ren10" school (Chicago Public Schools 2010a).

12. The Consortium on Chicago Schools Research has a long-standing data sharing agreement with the Chicago Public Schools district, which allows it to maintain an archive of

more than 15 years of data on district students and schools, with unique student and school identifiers. The archive contains complete administrative records for each student for each semester since 1991, course transcripts of high school students since 1992, elementary and high school achievement test scores of students since 1990, and teacher and principal personnel files since 1994.

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